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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,595	11/01/2002	Darin R. Okerlund	125974	2440
23413	7590	12/09/2004		
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			EXAMINER SHAW, SHAWNA JEANNINE	
			ART UNIT 3737	PAPER NUMBER

DATE MAILED: 12/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/065,595

Applicant(s)

OKERLUND ET AL.

Examiner

Shawna J. Shaw

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11/1/02, 5/29/03, 6/2/03, 10/14/03, 11/21/03, 11/24/03, 9/13/04, 11/18/04.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 14, 15 and 31-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 16-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 November 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 05202003, 06022003, 10142003, 11212003, 11242003, 09132004
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-13, drawn to an imaging system including a medical scanner for generating a volume of cardiac image data for an interventional planning procedure, classified in class 600, subclass 407.
  - II. Claims 14-15, drawn to a computer system for use in a medical interventional procedure including a data port for receiving probe information, classified in class 600, subclass 424.
  - III. Claims 16-30, drawn to a method for managing previously acquired cardiac image data through segmentation and inserting a geometric marker for subsequent analysis and registration with the image data classified in class 600, subclass 407.
  - IV. Claims 31-33, drawn to a method for using a volume of previously acquired cardiac image data during an interventional procedure including applying a probe into a vessel and identifying a landmark of the probed vessel for performing real time vessel tracking and navigation, classified in class 600, subclass 424.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are

shown to be separately usable. In the instant case, invention II has separate utility such as use without a scanner and/or cardiac applications. See MPEP § 806.05(d).

Inventions III and I/II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus could be used without segmentation processing and/or insertion of geometric markers. Furthermore invention II could be used in non-cardiac applications.

Inventions IV and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case IV could be performed without an imager/scanner and I could be used without identification of landmarks.

Inventions IV and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case II could be used in non-cardiac applications and without identification of landmarks.

Inventions III and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention IV has separate utility such as use without a medical scanner and/or segmentation processing. Invention III has separate utility such as use without a probe inserted into a vessel and/or non-real time tracking. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group III is not required for Group I or II, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group IV, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

2. During a telephone conversation with David Arnold on 11/17/2004 a provisional election was made with traverse to prosecute the invention of Group III, claims 16-30 and Group I, claims 1-13 as amended in the communication filed 11/18/2004.

Affirmation of this election must be made by applicant in replying to this Office action.

Accordingly, claims 14, 15 and 31-33 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-13 and 16-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Okerlund et al. (2003/0187358).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1-5, 9-12, 16-21, 28 and 29, Okerlund et al. discloses all of the claimed subject matter. See e.g., fig. 1, ¶s [0017-20] and claims 1, 4, 5, 8, 9, 13-24, 26 and 35. Further regarding claims 6-8, 13, 22-27 and 30, Okerlund et al. discloses using known post-processing tools for performing advanced vessel analysis and volume rendering such as (AVA) and (CARDIQ) (see ¶ [0019-20] and GE "CardIQ" and "Advanced Vessel Analysis" product descriptions).

***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-13, 16-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keidar in view of Subramanyan et al. and further in view of Chen et al. (WO 96/10949).

Regarding claims 1-13, 16-28 and 30, Keidar discloses a system and method for generating a 3D model for use in cardiac interventional planning procedures (such as ventricular pacing planning or atrial fibrillation planning) including everything except for a database, an operator interface and a post-processing system for inserting a geometrical marker and selecting a viewable parameter. See fig. 1, 6 and 7 and elements 48 and 49. Subramanian et al. disclose a method and apparatus for interventional procedure planning (such as placement of a stent) using a user interface (44) and a post-processing system (40, 48) for marker (72, 280) placement and viewable parameter selection (fig. 9-11). Subramanian also disclose saving a viewable image, anatomical landmark, etc. (34, 46) to be exported to user interface (44). See fig. 1. Subramanian further disclose wherein the post processing software further performs image rendering (242) and vessel tracking along a centerline (82). It would have been obvious at the time the invention was made to a person of ordinary skill in the art to employ the user-interface and post-processing software of Subramanian et al. in the invention as taught by Keidar to enable vascular tracking and visualization in 3D from multiple directions (Subramanian, col. 2 lines 25-27) and to allow intuitive graphical feedback and interaction with the physician (Subramanian, col. 2 lines 39-42) when administering treatment in tricky regions of the heart which are difficult to mentally visualize (cp. Keidar, col. 1 lines 12-27). Furthermore, although Subramanian discloses saving the image data, a database is not addressed explicitly. Chen et al. discloses a system and method for anatomical visualization of structures demonstrating that image databases (e.g., 10) are well known and can be used for independently



manipulating data and to generate images from a wide variety of viewing positions (see p. 16-18). It would have therefore been obvious at the time the invention was made to a person of ordinary skill in the art to employ a database as taught by Chen et al. in the invention as taught by Keidar in view of Subramanyan et al. as is well known in the art and for the above described reasons.

5. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keidar in view of Subramanyan et al. and further in view of Chen et al. (WO 96/10949) in view of Takeo et al.

Regarding claim 29, the above mentioned references differ from the claimed invention in that a radiation therapy medical digital imaging object standard is not specifically addressed. Takeo demonstrates that it is well known to store image data in DICOM format to enable standardized communication and exchange of data (col. 1 lines 18-53). It would have been obvious at the time the invention was made to a person of ordinary skill in the art to transfer data using DICOM format as taught by Takeo in the invention as taught by Keidar in view of Subramanyan et al. and further in view of Chen for the above described reasons.


### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawna J. Shaw whose telephone number is (703) 308-2985. The examiner can normally be reached on 6:45 a.m. - 3:15 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (703) 308-3552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shawna J. Shaw  
Primary Examiner  
Art Unit: 3737  
12/6/2004